

# Claims

- [c0001] 1. A method for sensing and measuring stress waves, comprising:
- a.) sensing motion, where said motion comprises a stress wave component and a vibration component;
  - b.) separating said stress wave component from said vibration component with a high pass filter to create a signal proportional to said stress wave;
  - c.) amplifying said signal to create an amplified signal;
  - d.) processing said amplified signal with a sample and hold peak detector over a predetermined interval of time to determine peaks of said amplified signal over said predetermined period of time;
  - e.) creating an output signal proportional to said determined peaks of said amplified signal; and,
  - f.) repeating steps d.) and e.).
- [c0002] 2. The method recited in Claim 1, further comprising the step of averaging said peaks of said amplified signal.
- [c0003] 3. The method recited in Claim 1 wherein said high pass filter is selectable about a plurality of frequencies.
- [c0004] 4. The method recited in Claim 2 wherein said high pass

filter is selectable about 1KHz and 5KHz.

[c0005] 5. The method of Claim 1 wherein said amplifying is done with a logarithmic amplifier.

[c0006] 6. The method of Claim 1 wherein said sensing is done with an accelerometer.

[c0007] 7. The method of Claim 1 wherein said sensing is done with a strain gauge.

[c0008] 8. An apparatus for sensing and measuring stress waves, comprising:

a.) means for sensing motion, where said motion comprises a stress wave component and a vibration component;

b.) means for separating said stress wave component from said vibration component to create a signal proportional to said stress wave;

c.) means for amplifying said signal to create an amplified signal;

d.) means for processing said amplified signal with a sample and hold peak detector over a predetermined interval of time to determine peaks of said amplified signal over said predetermined period of time;

e.) means for creating an output signal proportional to said determined peaks of said amplified signal; and,

f.) means for repeating steps d.) and e.).

[c0009] 9. The apparatus recited in Claim 8 wherein said means for sensing is an accelerometer.

[c0010] 10. The apparatus recited in Claim 8 wherein said means for sensing is a strain gauge.

[c0011] 11. The apparatus recited in Claim 8 wherein said means for separating said stress wave component from said vibration component to create a signal proportional to said stress wave is a high pass filter.

[c0012] 12. The apparatus recited in Claim 11 wherein said means for separating said stress wave from said vibration component to create a signal proportional to said stress wave comprises a selectable dual frequency high-pass filter, selectable to pass signals above at least two different frequencies.

[c0013] 13. The apparatus recited in Claim 12 wherein said high-pass filter is selectable about 1KHz or 5 KHz.